REMARKS

Claims 41 and 48 have been cancelled. Claims 24, 28, 29, 30, 35, 42, 49, and 56 have been amended. It is submitted that no new matter has been introduced by the foregoing amendments.

Claim 24 has been amended to more particularly point out the nature of the some of the components of the claimed polymer. Support for this amendment is found in the specification at, for example, page 3, lines 3-28 and in original claim 1. *See In re Gardner*, 177 USPQ 396, 397 (CCPA 1973) and MPEP §§ 608.01(o) and (l).

Claim 28 has been amended to recite "[p]olymers according to claim 24, in which the quantity of starch complex is dispersed in the hydrophobic polymer matrix in quantities of from 0.5 to 50% by weight." Support for this amendment is found in the specification at, for example, page 12, lines 8-13 and in original claim 5. *See In re Gardner*, 177 USPQ 396, 397 (CCPA 1973) and MPEP §§ 608.01(o) and (l).

Claim 29 has been amended to recite "[p]olymers according to claim 24, in which the starch complex is produced from compositions of starch with a complexing agent containing hydrophilic groups intercalated with hydrophobic sequences, wherein the starch complex is present and from which a micro-dispersion of particles with numeral average diameters of less than 1 micron is formed by treatment in water at 100°C under stirring." Support for this amendment is found in the specification at, for example, page 6, lines 3-13 and in original claim 6. *See In re Gardner*, 177 USPQ 396, 397 (CCPA 1973) and MPEP §§ 608.01(o) and (l).

Claim 30 has been amended to recite "[p]olymers according to claim 24, produced with compositions having a water content of less than 20%, and higher than 2% by weight, and a

Tg below 0°C." Support for this amendment is found in the specification at, for example, page 5, line 22 to page 6, line 2 and in original claim 7. *See In re Gardner*, 177 USPQ 396, 397 (CCPA 1973) and MPEP §§ 608.01(o) and (l).

Claim 35 has been amended to remove "or a derivative thereof." Support for this amendment is found in the specification at, for example, page 7, lines 10-11. *See In re Gardner*, 177 USPQ 396, 397 (CCPA 1973) and MPEP §§ 608.01(o) and (l).

Claim 42 has been amended to no longer depend from a cancelled claim.

Claim 49 has been amended to remove "ethylene polymers and copolymers, crystalline propylene polymers and copolymers, aromatic polyester resins, polyamides, polyoxymethylene resins, polyphenylene oxide resins, polycarbonates." Support for this amendment is found in the specification at, for example, page 3, lines 3-28 and in original claim 1. *See In re Gardner*, 177 USPQ 396, 397 (CCPA 1973) and MPEP §§ 608.01(o) and (l).

Claim 56 has been amended to properly reflect the dependency from claim 49. No new matter has been added.

Initially, we note that claim 30, which is currently pending, has not been formally rejected by the Examiner. Accordingly, since the Examiner has not rejected this claim, this claim stands allowed. To the extent claim 30 is in condition for allowance, the Examiner is asked to formally state so on the record.

Indefiniteness Rejections

Claims 41, 42, 48, 28, and 35 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite for falling to particularly point out and distinctly claim the subject matter which applicants regards as the invention. (Paper No. 21 at 2).

The Examiner stated that "[c]laims 41, 42 & 48 are indefinite in depending from claims 40 & 39, which are cancelled." (*Id.*) Applicants have cancelled claims 41 and 48, and claim 42 has been amended to depend from claim 52 instead of cancelled claim 40. Since claims 41 and 48 have been cancelled and claim 42 no longer depends from a cancelled claim, applicants respectfully submit the rejection is now moot and should be withdrawn.

Claim 28 was rejected as being "indefinite because it is not known what is cited percentage is based on." (*Id.*) Applicants have amended claim 28. Claim 28 now recites a "[p]olymers according to claim 24, in which the quantity of starch complex is dispersed in the hydrophobic polymer matrix in quantities of from 0.5 to 50% by weight." Applicants respectfully submit the rejection is now moot and should be withdrawn.

Claim 35 was rejected as being "indefinite because it is not known which derivatives are envisioned." (*Id.*) Claim 35 has been amended to remove "or a derivative thereof." Applicants respectfully submit the rejection is now moot and should be withdrawn.

Obviousness Rejections

Bastioli *et al.*, EP 0965615 in view of Corvasce *et al.*, EP 0795581

Claims 24, 25, 28, 29, 34, 36, and 41-56 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bastioli *et al.*, EP 0965615 ("Bastioli") in view of Corvasce *et al.*, EP

0795581 ("Corvasce"). (Paper No. 21 at 2). For the reasons presented below, reconsideration and withdrawal of the rejection respectfully are solicited.

Bastioli discloses "[h]eteorphasic compositions comprising starch and a thermoplastic polymer that is incompatible with the starch, in which the starch constitutes the discontinuous phase and the thermoplastic polymer the continuous matrix, having an impact strength greater than 30 KJ/m^2 (measured on blown film of 30 microns thick at 10°C and RH less than 5%), and further characteri[z]ed by the presence in the X-ray diffraction spectrum of a peak at an angle 2-theta from 13 to 14° the ratio of the intensity of which to that of the peak of the amorphous starch which occurs at 20.5°, is less than 2 and greater than 0.02." (Abstract).

Corvasce discloses "a rubber composition containing a starch/plasticizer composite ...." (Abstract). "The starch/plasticizer composite can be a composite of starch and plasticizer such as, for example, poly(ethylenevinyl alcohol) and/or cellulose acetate or any suitable plasticizer which results in such starch/plasticizer composite having a melting point below that of starch alone, and particularly below 160°C, and to thereby enable the starch to be more processable with conventional elastomer composition equipment." *Id.* "In the practice of this invention, a rubber composition comprises at least one elastomer, a starch/plasticizer composite, optionally at least one coupler and, optionally, at least one of carbon black and silica reinforcement alone or in conjunction with another reinforcing or non-reinforcing filler." *Id.*

In making the rejection, the Examiner relied on Bastioli for "disclosing complexed starch-containing compositions having high mechanical properties." (Paper No. 21 at 2). The Examiner alleged "[s]tarch forms complexes with synthetic polymers such as polyethylene, vinyl alcohol or polyethylene acid acrylate (p. 2, lines 46-47) and such complex

acts as a compatibility - inducer or phasing agent." (*Id.*) The Examiner further asserted "Bastioli mentions, besides starch and polymers, some interfacial agents on page 4, lines 37-49. These agents can be looked upon as (instantly claimed) complexing agents." (*Id.* at 3).

The Examiner, however, acknowledged that Bastioli "does not mention (claimed) coupling agent as part of [the] starch complex." (*Id.*)

To fill the acknowledged gap, the Examiner relied on Corvasce for "disclos[ing] a rubber composition containing a starch/plasticizer [sic] composite, an elastomer, optionally a coupler and optionally a carbon black as well as silica (abstract)." (*Id.*) The Examiner further asserted "[o]n page 2, line 53 to page 3, line 16, several suitable coupling agents are mentioned," which "read on those that are instantly claimed." (*Id.*)

The Examiner then summarily contended that it would have been obvious "from the teachings of Corvasce, to use coupling agent/s in the composition of Bastioli '615 in order to improve mechanical strength of the product made out of that composition."

It is well settled that the Examiner bears the burden to set forth a *prima facie* case of unpatentability. *In re Glaug*, 62 USPQ2d 1151, 1152 (Fed. Cir. 2002); *In re Oetiker*, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); and *In re Piasecki*, 223 USPQ 785, 788 (Fed. Cir. 1984). If the PTO fails to meet its burden, then the applicant is entitled to a patent. *In re Glaug*, 62 USPQ2d at 1152. Moreover, in attempting to set forth a *prima facie* case for obviousness the Examiner is required to consider the claimed invention as a whole (i.e., consider each and every limitation of the claimed invention). "In determining the differences between the prior art and the claims, the question under 35 U.S.C. § 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious.

Stratoflex, Inc. v. Aeroquip Corp., 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983)." (MPEP § 2141.02, 8th ed., Rev. 1, February 2003, p. 2100-120.) (Emphasis original.)

Initially, we note with regard to claims 24, 25, 28, 29, 34, 36, and 41-56, the Examiner failed to engage in the mandatory analysis handed down by the Supreme Court and adopted as PTO policy. For example, the rejection failed to consider claims 24, 25, 28, 29, 34, 36, and 41-56 as a whole. The rejection failed to identify the differences between each of claims 24, 25, 28, 29, 34, 36, and 41-56 and the cited documents. And, the rejection failed to engage in any analysis relating to whether the claimed invention as a whole would have been obvious. That was error. *See Graham v. John Deere Co.*, 383 US 1, 17-18, 148 USPQ 459, 467 (1966); and MPEP §2141 at 2100-115 ("Office policy is to follow *Graham v. John Deere Co.* in the consideration and determination of obviousness under 35 USC §103."); and *Ex Parte Roller*, 2004 WL 45458, *2 (unpublished) (BPAI 2004) ("In rejecting claims under 35 U.S.C. §103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. In doing so, the Examiner is expected to make the factual determinations set forth in *Graham v. John Deere Co.*, and to provide a reason why one having ordinary skill in the art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention.") (citations omitted). For this reason alone, the rejection should be withdrawn.

We further note that the Examiner's previous 35 U.S.C. § 103 rejection in the Final Office Action mailed January 31, 2003 was over Bastioli WO98/20073 in view of Corvasce and Bastioli. After reviewing our Response mailed June 2, 2003, the Examiner withdrew the

rejection. In the current outstanding Office Action (Paper No. 21 at 2), the Examiner has rejected claims 24, 25, 28, 29, 34, 36, and 41-56 under 35 U.S.C. § 103(a) as being unpatentable over Bastioli in view of Corvasc. In other words, the previous §103 rejection was over three references and was withdrawn, and currently, the §103 rejection is over two references - the same two secondary references (Corvasce and Bastioli) that were considered in the previous Office Action and withdrawn. If the claimed invention was not considered obvious over three references then how can it be considered obvious over only two of the three references cited in the January 31, 2003 Final Office Action. For this additional reason, the rejection should be withdrawn.

In view of the foregoing, we respectfully remind the Examiner that "[p]iecemeal examination should be avoided as much as possible. ***The examiner ordinarily should reject each claim on all valid grounds available.***" MPEP § 707.07(g), 8th ed., Rev. 1, February 2003, p. 700-116.

Furthermore, it is respectfully submitted that the Examiner has again misinterpreted the disclosure of Bastioli and Corvasce. However, with a view towards furthering prosecution independent claims 24 and 49 have been amended to further define the claimed invention. Therefore, the obviousness rejection of claims 24, 25, 28, 29, 34, 36, and 41-56 over Bastioli in view of Corvasce should be withdrawn for the following additional reasons.

Newly amended claim 24 is now limited to specific hydrophobic polymers (i.e., selected from polymers of group (a) or group (b), wherein the group (a) polymers are selected from the group consisting of aliphatic polyesters, aliphatic-aromatic polyesters, aliphatic polyamides, amide ester copolymers, urethane ester copolymers, urethane amide copolymers, and

urea ester co-polymers and the group (b) polymers are selected from the group consisting of ethylene polymers and copolymers, crystalline polypropylene polymers and copolymers, aromatic polyester resins, polyamides, polyoxymethylene resins, polyphenylene oxide resins, and polycarbonates). The hydrophobic polymers which are listed in amended claim 24 do not include natural or synthetic rubbers.

Newly amended claim 49 is now limited to rubber type hydrophobic polymers (i.e., a hydrophobic polymer selected from the group consisting of styrene-butadiene rubbers, polybutadiene rubbers, polyisoprene rubbers, ethylene-propylene and ethylene-propylene-diene rubbers, and natural rubber).

In combining references, the suggestion and motivation to make the combination must be based on "actual evidence" that must be "clear and particular." *In re Dembiczak*, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) *abrogated on other grounds by In re Gartside*, 53 USPQ2d 1769 (Fed. Cir. 2000). Here, there is no such evidence. The Examiner's conclusion that it would have been obvious "from the teachings of Corvasce, to use coupling agent/s in the composition of Bastioli '615 in order to improve mechanical strength of the product made out of that composition" is error. (Paper No. 21 at 3). At the time of the invention, it was not known whether the coupling agents used in the Corvasce compositions could have reacted with the groups present in the polymeric matrix of the compositions of newly amended claim 24 - which are groups not present in the diene rubber of Corvasce. The coupling agents of Corvasce contain two moieties. One moiety reacts with a reinforcing filler with hydroxyl groups present on its surface, and the other moiety reacts with a diene rubber. (Page 2, lines 53-58). The Examiner has failed to present any evidence that it would have been obvious to one of ordinary skill in the

art to use the couplings agents disclosed in Corvasce with the groups present in the polymeric matrix of the instantly claimed compositions. *Dembiczak*, 50 USPQ2d at 1617.

Furthermore, the starch (e.g., amylose) present in the starch complex of the compositions of the amended claims is wholly or largely in complexed form. The complex does not contain unreacted hydroxyl groups available for the reaction with the coupling agent. The low solubility in water at 100°C of the complex indicates that no unreacted starch, which is water soluble is present, and no water soluble complex is also present.

There is no teaching or suggestion in Bastioli of a starch complex with "a solubility in 100°C water of less than 20%." There is also no teaching or suggestion in Bastioli that the starch complex present in the compositions of Bastioli has the fine microstructure of the complex of the claimed compositions (e.g., an average particle size of less than 1 micron).

The starch complex of the Bastioli compositions is formed by reaction of starch with the biodegradable polymer forming the matrix of the composition, which polymer is essentially an aliphatic polyester-type polymer. In the composition of newly amended claim 24, the hydrophobic polymer used to form the complex differs from the hydrophobic polymer forming the matrix when the polymer is a biodegradable aliphatic polyester-type polymer (i.e., the "group a)" polymers of claim 24). In addition, the matrix forming polymers the "group (b)" polymers of claim 24 and the various rubbers of claim 49 belong to classes of polymers completely different from the aliphatic polyester-type polymers used in the Bastioli compositions.

Moreover, even if Bastioli could be combined with Corvasce as the Examiner urges, the mere fact that the teachings found in the prior art *could be combined* does not make the

combination obvious absent some teaching, suggestion, or incentive supporting the proposed combination. Recently, the Board in *Ex parte Metcalf*, 67 USPQ2d 1633, 1635 (BPAI 2003) explained:

> The U.S. Court of Appeals for the Federal Circuit has stated that '[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification.' *In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992) (citing *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984)). ***Although this statement is couched in terms of modifying the prior art, we hold that a similar one applies to combining teachings found in the prior art. Specifically, the mere fact that teachings found in the prior art could be combined as proposed by an examiner does not make the combination obvious 'absent some teaching, suggestion or incentive supporting the combination.'*** *Carella*, 804 F.2d at 140, 231 USPQ at 647 (citing *ACS Hosp. Syss., Inc.*, 732 F.2d at 1577, 221 USPQ at 933). In the instant appeal, the examiner fails to identify any such teaching, suggestion, or incentive to support his proposed combination. Therefore, we reverse the rejection of claims 1, 2, 4-10, 12-15, 17-19, and 21-55 as obvious over the combination of Murry and Paroutaud.

Here, too, the record is devoid of any such "teaching, suggestion or incentive supporting the combination" of Bastioli in view of Corvasce. The Examiner combined Bastioli with Corvasce based upon the Examiner's own conclusion that the references *could* be combined, rather than on any teaching or suggestion from either reference. Combining references in this manner is directly counter to the Board's holding *Metcalf*.

One of ordinary skill would not have expected to achieve the claimed compositions by using the coupling agents mentioned in Corvasce with the compositions of Bastioli. The capability of the claimed polymers of efficiently dispersing the starch complex is

not suggested or taught by Bastioli or Corvasce. For this additional reason, it is respectfully submitted that the rejection is factually and legally insufficient and should be withdrawn.

Bastioli in view of Corvasce, and further in view of Sun *et al.*, U.S. Patent No. 6,211,325

Claim 27 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Bastioli in view of Corvasce, and further in view of Sun *et al.*, U.S. Patent No. 6,211,325 ("Sun"). (Paper No. 21 at 3.) For the reasons presented below, reconsideration and withdrawal of the rejection respectfully are solicited.

Bastioli is summarized above.

Corvasce is summarized above.

Sun discloses "[b]iodegradable polymers for use in forming high strength, degradable plastics and methods of forming the polymers are provided. Broadly, the methods comprise forming and heating a blended mixture of polylactic acid, a starch, and a linkage group for joining or copolymerizing the polylactic acid and starch. Preferred linkage groups comprise an isocyanate moiety, with diphenylmethylene diisocyanate, hexamethylene diisocyanate, and isophorone diisocyanate. The reacted mixture can then be formed into the desired final product which has high tensile strength, modulus of elasticity, percent elongation, and thermal stability." (Abstract).

In making the rejection, the Examiner relied on Bastioli in view of Corvasce "as applied to claim 24 above." (Paper No. 21 at 3).

The Examiner, however, acknowledged that "Bastioli together with Corvasce fails to mention the complexing agent of instant claim 27." (*Id.*)

To fill the acknowledged gap, the Examiner relied on Sun for "disclo[ing] high strength plastic from reactive blending of starch and polyactic acids." (*Id.*) The Examiner further asserted "[i]t can be seen that polya[c]tic acid reacts with the starch to form a produ[c]t or a complex thereby resulting in a material possessing enhanced strength." (*Id.*)

The Examiner then contended that it would have been obvious "to use polyactic acid (as a complexing agent) in the composition of Bastioli to enhance strength." (*Id.*)

Initially, we note that Sun is not a proper reference to be applied against U.S. Application Serial No. 09/787,831. The international filing date for the above-referenced application is September 22, 1999. Sun did not issue as a U.S. Patent until April 3, 2001. 35 USC §§363 and 374, reproduced below, treat an international application designating the U.S. in the same manner as a regularly filed U.S. national application upon the satisfaction of certain formal requirements.

> ***§363 International application designating the United States: Effect***
>
> **An international application designating the United States shall have the effect,** from its international filing date under article 11 of the treaty, **of a national application for patent regularly filed in the Patent and Trademark Office** except as otherwise provided in section 102(e) of this title.
>
> ***§374 Publication of international application***
>
> The publication under the treaty defined in section 351(a) of this title, of an international application designating the United States shall be deemed a publication under section 122(b), except as provided in sections 102(e) and 154(d) of this title.

The Patent Cooperation Treaty (PCT) requires that member states give the same effect to an international application as if that application had been filed in the designated state.

> **[A]ny international application ... accorded an international filing date shall have the effect of a regular national application**

> **in each designated State as of the international filing date**, which date shall be considered to be the actual filing date in each designated State.

PCT Article 11(3).

The Board of Patent Appeals and Interferences recognizes the effective filing date of a U.S. national application as the date the underlying the international application was filed - not the (later) date the U.S. national application was filed or any other date. *See Ex parte Becher*, 2000 WL 33520320, *8 n. 1 (BPAI 2000) (unpublished) ("This application was filed on August 4, 1994 under the provisions of 35 U.S.C. §371 as a national stage application of PCT/EP92/02914 which was filed December 16, 1992. Therefore, the present application has an effective filing date of December 16, 1992. (35 USC §363; 37 CFR §1.495)."); *see also Ex parte May*, 1999 WL 33205739, *6 n. 6 (BPAI 1999) (unpublished) ("We note that the filing date of this application [the national stage application of the international PCT application] is December 13, 1994, its international filing date, under 35 USC §363.").

Therefore, the rejection is deficient as a matter of law and should be withdrawn for this reason alone.

With an effort to further prosecution, we also address the merits of the Examiner's rejection. We note that the arguments made above with regards to the rejection over Bastioli in view of Corvasce apply with equal force to the rejection over Bastioli in view of Corvasce and further in view of Sun.

The Examiner asserted that it would have been obvious "to use polyactic acid (***as a complexing agent***) in the composition of Bastioli to enhance strength." (Paper No. 21 at 3) (emphasis added). Sun discloses that diisocyanate is a linkage agent for joining polylactic acid to starch. (Abstract). There is no disclosure in Sun that polylactic acid is a complexing agent of

starch. Therefore, it was error to state that Sun discloses polylactic acid as a complexing agent of starch, and to rely on Sun for such disclosure.

At bottom, neither Bastioli, Corvasce, nor Sun disclose or suggest that the polylactic acid disclosed in Sun is a complexing agent of starch. The rejection substituted conjecture and unsupported observations about the current state-of-the-art for the required factual analysis based on the record. *See Ex parte Humphreys*, 24 USPQ 2d 1255, 1262 (BPAI 1992) ("The Examiner's rejection is not specific as to how one of ordinary skill in the art would have found it (the claimed invention) obvious ...."). Thus, the rejection is factually deficient to support a rejection under §103 based on Bastioli, Corvasce, and Sun, whether taken alone or in combination. For this reason also, the rejection should be reversed.

We also observe that just because it may be theoretically possible to arrive at the claimed invention by picking and choosing elements from the prior art, that is not a proper basis for a rejection under §103. *See In re Fritch*, 23 USPQ2d 1780, 1783-1784 (Fed. Cir. 1992) ("The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification."). Thus, what the Examiner was required to do - but did not do - was to provide some motivation from Bastioli, Corvasce, or Sun that would have suggested the desirability of utilizing polylactic acid as a complexing agent. And, what the Examiner was required to do - but did not do - was to identify some motivation from Bastioli, Corvasce, or Sun that the polylactic acid of Sun could have been isolated and used in the instantly claimed composition(s). Because the rejection is devoid of any of this kind of evidence, it should be reversed for this reason as well.

Bastioli in view of Corvasce, and further in view of Otey *et al.*, U.S. Patent No. 4,133,784 and Bastioli *et al.*, EP 0437589

Claims 31-33 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bastioli in view of Corvasce, and further in view of Otey *et al.*, U.S. Patent No. 4,133,784 ("Otey") and Bastioli *et al.*, EP 0437589 ("Bastioli '589").

Bastioli is summarized above.

Corvasce is summarized above.

Otey discloses "[b]iodegradable film compositions which will withstand outdoor exposure for a desired time and then disintegrate are prepared from starch and ethylene acrylic acid copolymers. These film compositions are useful for agricultural mulch and heat-sealable packaging." (Abstract).

Bastioli '589 discloses "[a] polymer composition useful for the production of articles of biodegradable plastics material includes destructed starch and a copolymer selected from the group consisting of ethylene-vinyl acetate, ethylene-glycidyl acrylate, ethylene-methyl methacrylate, ethylene-maleic anhydride and possibly ethylene vinyl alcohol." (Abstract).

In making the rejection, the Examiner relied on Bastioli in view of Corvasce "as applied to claim 24 & 30 above." (Paper No. 21 at 4).

The Examiner, however, acknowledged that "Bastioli '615 together with Corvasce fails to mention the (claimed) complexing agents." (*Id.*)

To fill the acknowledged gap, the Examiner relied on Otey for "disclo[ing] [a] composition prepared from starch [and] copolymers of ethylene and acrylic acid" and Bastioli '589 for "disclos[ing] [a] composition containing starch and copolymer of ethylene and vinyl acetate." (*Id.*)

The Examiner then contended that it would have been obvious "to use in the composition of Bastioli '615, ethylene-acrylic acid copolymer and/or ethylene-vinyl acetate copolymers as alternative moieties and still produce [a] composition having high mechanical properties." (*Id.*)

Initially, we note that the arguments made above with regards to the rejection over Bastioli in view of Corvasce apply with equal force to the rejection over Bastioli in view of Corvasce and further in view of Otey and Bastioli '589.

We further note that the subject matter of claim 33 is not even relevant to the current rejection. Claim 33 recites "[p]olymers according to claim 32, in which the ***ethylene/vinyl alcohol copolymer contains from 50 to 75% of vinyl alcohol in moles.***" (Emphasis added). The Examiner relied Otey for "disclo[ing] [a] composition prepared from starch [and] copolymers of ***ethylene and acrylic acid***" and Bastioli '589 for "disclos[ing] [a] composition containing starch and copolymer of ***ethylene and vinyl acetate.***" (Paper No. 21 at 4) (emphasis added). Neither reference is relied upon for disclosing an "***ethylene/vinyl alcohol copolymer contain[ing] from 50 to 75% of vinyl alcohol in moles.***" A *prima facie* case for obviousness requires the Examiner to demonstrate that each and every element recited in the claim is found in the prior art reference(s). *See* MPEP § 2143.03 at 2100-128, 8th Ed. Rev. 1 (Feb. 2003) ("All Claim Limitations Must Be Taught or Suggested"); *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) (To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art.). For this additional reason, the rejection of claim 33 should be withdrawn.

The rejection as a whole is also insufficient. When patentability turns on the question of obviousness, as here, the search for and analysis of the prior art by the PTO must include evidence relevant to the finding of whether there is a teaching, motivation, or suggestion to select and combine the documents relied on by the Examiner as evidence of obviousness. *McGinley v. Franklin Sports*, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001). The factual inquiry whether to combine documents must be thorough and searching. And, as is well settled, the teaching, motivation, or suggestion to combine "***must be based on objective evidence of record***." *In re Lee*, 61 USPQ2d 1430, 1433 (Fed. Cir. 2002).

The rejection, however, fails to identify ***why*** one skilled in this art would modify the disclosure of Bastioli '589 and Otey using Bastioli or Corvasce to arrive at the claimed invention. Otey, as a whole, discloses "[b]iodegradable film compositions which will withstand outdoor exposure for a desired time and then disintegrate are prepared from starch and ethylene acrylic acid copolymers." (Abstract). Bastioli '589, as a whole, discloses "[a] polymer composition useful for the production of articles of biodegradable plastics material includes destructed starch and a copolymer selected from the group consisting of ethylene-vinyl acetate, ethylene-glycidyl acrylate, ethylene-methyl methacrylate, ethylene-maleic anhydride and possibly ethylene vinyl alcohol." (Abstract). The rejection identifies no disclosure in either Otey or Bastioli '589 that suggest utilizing the copolymers of ***ethylene and acrylic acid*** disclosed in Otey or the copolymers of ***ethylene and vinyl acetate*** disclosed in Bastioli '589 in the composition of Bastioli. Accordingly, there is no evidence of record to support the Examiner's conclusion that it would have been obvious "to use in the composition of Bastioli '615, ethylene-acrylic acid copolymer and/or ethylene-vinyl acetate copolymers as alternative moieties and still produce [a]

composition having high mechanical properties." (Paper No. 21 at 4). Thus, the rejection is legally insufficient to support a rejection under § 103, and the rejection should be withdrawn for this reason as well.

Bastioli in view of Corvasce as and further in view of Hoover et al., U.S. Patent No. 5,650,454

Claim 35 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Bastioli ['615] in view of Corvasce as and further in view of Hoover *et al.*, U.S. Patent No. 5,650,454 ("Hoover"). (Paper No. 21 at 4).

Bastioli is summarized above.

Corvasce is summarized above.

Hoover discloses a "rubber additive...which comprises crosslinked fatty acid and starch, and preferably further comprises a carrier, preferably an asphalt carrier. The rubber additive increases tear resistance when added to a rubber compound." (Abstract).

In making the rejection, the Examiner relied on Bastioli in view of Corvasce as "applied to claim 24 above." (Paper No. 21 at 4).

The Examiner, however, acknowledged that "Bastioli together with Corvasce fails to disclose (claimed) fatty acid or its derivative." (*Id.*)

To fill the acknowledged gap, the Examiner relied on Hoover for disclosing "an additive comprising crossli[n]ked fatty acid & starch provid[ing] increased tear resistance when mixed with a rubber compound." (*Id.*)

The Examiner then contended that "it ***could have been obvious*** to use a fatty acid for reacting with starch in the composition of Bastioli with the expectation of increasing

mechanical properties of the product such as films, bags made out of that composition." (*Id.*) (emphasis added).

Initially, we note that the arguments made above with regards to the rejection over Bastioli in view of Corvasce apply with equal force to the rejection over Bastioli in view of Corvasce and further in view of Hoover.

Moreover, the rejection uses the wrong standard for determining obviousness. The rejection relies upon a "***could have been obvious***" standard that is not found in the statute or precedential authority. As is well settled, an Examiner cannot establish obviousness by locating references which describe various aspects of a patent applicant's invention without also providing evidence of the motivating force which would ***impel*** one skilled in the art to do what the patent applicant has done. *Ex parte Levengood*, 28 USPQ2d 1300, 1301-02 (BPAI 1993). The rejection fails to provide any reason why one would be motivated, let alone impelled, to combine the Bastioli, Corvasce, and Hoover references in the manner suggested by the Examiner. Thus, the rejection fails to set forth the facts and reasoning required to support a *prima facie* case of obviousness. For this reason alone, the rejection should be withdrawn.

Furthermore, the rejection is based on generalities - not facts. The rejection states, in general, that "it could have been obvious to use a fatty acid for reacting with starch in the composition of Bastioli with the expectation of increasing mechanical properties of the product such as films, bags made out of that composition." (Paper No. 21 at 5). Obviousness ***must*** be based upon facts, "cold hard facts." *In re Freed*, 165 USPQ 570, 571-72 (CCPA 1970). When a conclusion of obviousness is not based upon facts, it cannot stand. *Ex parte Saceman*, 27 USPQ2d 1472, 1474 (BPAI 1993).

Hoover is cited against claim 35 to show that the use of fatty acids as complexing agents in the Bastioli compositions "could" have been obvious since starch dispersed in a crosslinked fatty acid (col. 4, lines. 48-53) was used as additive for rubber to improve tear resistance. However, in Hoover, there is no indication that starch forms a complex with the crosslinked fatty acids. The IR peaks reported in Hoover (col. 4, lines. 56-61) do not comprise a peak at 940-950 cm^{-1} characteristic of the starch complex used in the claimed compositions. Here, the Examiner points to no disclosure in Hoover that suggests that starch forms a complex with the crosslinked fatty acids. As the precedent above clearly establishes, an obviousness rejection must be based on facts - not speculation, conjecture, or generalities. For this additional reason, the rejection should be withdrawn.

CONCLUSION

In view of the foregoing, favorable action on the merits, including withdrawal of the rejections, and allowance of all the claims, is respectfully requested. If the Examiner has any questions regarding this paper, please contact one of the undersigned attorneys.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on August 9, 2004.

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